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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,057	03/18/2004	Nobuhisa Yoshida	250710US2S	4626

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EXAMINER	
MUHAMMED, ABDUKADER S	
ART UNIT	PAPER NUMBER
2627	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	04/20/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 04/20/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/803,057	YOSHIDA ET AL.	
	Examiner	Art Unit	
	Abdukader Muhammed	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawing

2. Figures 1A-1E, 2A, 8A-8F, 9A-9G, and 10A-10C should be designated by a legend such as --**Prior Art**-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 1-12 are objected to because of the following informalities:

In claims 1 and 7, line 3 "on which a **recoding** film" should be "on which a **recording** film".

In claim 1, line 7 recites "or on which a reflection film is formed"; it is unclear whether the "reflection film" is provided in addition to "the recording film" or if it is a replacement formed on the substrate instead of the "recording film".

In claim 7, line 4 "capable of recording and **erasig**" should be "capable of recording and **erasing**"

In claims 1-12 the recitation of "double refraction component" is not clear what structure of the optical disk it is referring to. The examiner interprets this limitation as birefringence or double refraction of light by the optical disk.

In claims 1-12 the last line recites, "measured by a double pass"; it is not what this limitation is referring to. The examiner interprets this limitation as measured by a double pass mode of measurement in reflection.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 2-3, 5-6, 8-9, and 11-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2 and 5 recite the limitation "±85 nm or less" in line 5. This limitation is outside of the scope of claim 1 and claim 4 on which claim 2 and claim 5 are depending, respectively.

Claims 8 and 11 recite the limitation "±70 nm or less" in line 5. This limitation is outside of the scope of claim 7 and claim 10 on which claim 8 and claim 11 are depending, respectively.

Claims 3 and 6 recite the limitation "±75 nm or less" in line 3. This limitation is outside of the scope of claim 1 and claim 4 on which claim 2 and claim 5 are indirectly depending, respectively.

Claims 9 and 12 recite the limitation "±55 nm or less" in line 3. This limitation is outside of the scope of claim 1 and claim 4 on which claim 7 and claim 10 are indirectly depending, respectively.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Kondo et al. (US Publication 2002/0172139 A1).

Regarding Claim 1, Kondo et al. teach an optical disk comprising a molded substrate molded by injection molding and having information marks transferred thereonto (substrate 8 formed by injection molding; see page 23, paragraph [0372], lines 3-5 and figure 10), on which a recording film capable of recording information only once by a laser beam having a wavelength of 600 nm or less is formed (recording layer 9 recorded by a light of wavelength 350 nm to 450 nm; see page 18, paragraph [0302], lines 4-6; paragraph [0303], lines 1-3; page 21, paragraph [0334] and figure 10), and to and from which information can be recorded and reproduced, or on which a reflection film is formed so as to reproduce information from the optical disk (a reflective layer composed of a high reflectivity film such as gold and aluminum is formed on an information recording surface; see page 1, paragraph [0006], lines 1-4), wherein the magnitude of a double refraction of the entire region of the optical disk is ±60 nm or less when measured by a double pass mode of measurement in reflection (the birefringence of the transmitting layer 10,

which dictates the birefringence of the whole disk as it is the only part light refracts through, is less than ±100 nm, preferably ±50 nm; see page 9, paragraph [0173], lines 7-12).

Regarding Claim 2, as applied to claim 1 above and Kondo et al. further teach that when PRML signal processing is used to reproduce the information (PRML decoding circuit is used; see page 18, paragraph [0294], lines 4-8), the magnitude of the double refraction of the entire region of the optical disk is ±85 nm or less when measured by the double pass mode of measurement in reflection (the birefringence of the transmitting layer 10, which dictates the birefringence of the whole disk as it is the only part light refracts through, is less than ±100 nm, preferably ±50 nm; see page 9, paragraph [0173], lines 7-12).

Regarding Claim 3, as applied to claim 2 above and Kondo et al. further teach that the magnitude of the double refraction of the optical disk is ±75 nm or less when measured by the double pass mode of measurement in reflection (the birefringence of the transmitting layer 10, which dictates the birefringence of the whole disk as it is the only part light refracts through, is less than ±100 nm, preferably ±50 nm; see page 9, paragraph [0173], lines 7-12).

Regarding Claim 4, Kondo et al. further teach an optical disk apparatus (see page 17, paragraph [0285]) that can record and reproduce information on and from an optical disk on which a recording film that can record information only once using a laser beam having a wavelength of 600 nm or less or that can reproduce information from an optical disk on which a reflection film is formed (recording layer 9 recorded by a light of wavelength 350 nm to 450 nm; see page 18, paragraph [0302], lines 4-6; paragraph [0303], lines 1-3; page 21, paragraph [0334] and figure 10), wherein the magnitude of a double refraction component of the entire region of

the optical disk is ±60 nm or less when measured by a double pass mode of measurement in reflection (the birefringence of the transmitting layer 10, which dictates the birefringence of the whole disk as it is the only part light refracts through, is less than ±100 nm, preferably ±50 nm; see page 9, paragraph [0173], lines 7-12).

Regarding Claim 5, as applied to claim 4 above and Kondo et al. further teach that when PRML signal processing is used to reproduce the information (PRML decoding circuit is used; see page 18, paragraph [0294], lines 4-8), the magnitude of the double refraction of the entire region of the optical disk is ±85 nm or less when measured by the double pass mode of measurement in reflection (the birefringence of the transmitting layer 10, which dictates the birefringence of the whole disk as it is the only part light refracts through, is less than ±100 nm, preferably ±50 nm; see page 9, paragraph [0173], lines 7-12).

Regarding Claim 6, as applied to claim 5 above and Kondo et al. further teach that the magnitude of the double refraction of the optical disk is ±75 nm or less when measured by the double pass mode of measurement in reflection (the birefringence of the transmitting layer 10, which dictates the birefringence of the whole disk as it is the only part light refracts through, is less than ±100 nm, preferably ±50 nm; see page 9, paragraph [0173], lines 7-12).

Regarding Claim 7, Kondo et al. teach an optical disk comprising a molded substrate molded by injection molding and having information marks transferred thereto (substrate 8 formed by injection molding; see page 23, paragraph [0372], lines 3-5 and figure 10), on which a recording film capable of recording and erasing information is formed, and on and from which information can be recorded and reproduced using a laser beam having a wavelength of 600 nm

or less (recording layer 9 recorded by a light of wavelength 350 nm to 450 nm; see page 18, paragraph [0302], lines 4-6; paragraph [0303], lines 1-3; page 21, paragraph [0334] and figure 10), wherein the magnitude of a double refraction component of the entire region of the optical disk is ±40 nm or less when measured by a double pass (the birefringence of the transmitting layer 10, which dictates the birefringence of the whole disk as it is the only part light refracts through, is less than ±100 nm, preferably ±50 nm ; see page 9, paragraph [0173], lines 7-12).

Regarding Claim 8, as applied to claim 7 above and Kondo et al. further teach that when PRML signal processing is used to reproduce the information (PRML decoding circuit is used; see page 18, paragraph [0294], lines 4-8), the magnitude of the double refraction of the entire region of the optical disk is ±70 nm or less when measured by the double pass mode of measurement in reflection (the birefringence of the transmitting layer 10, which dictates the birefringence of the whole disk as it is the only part light refracts through, is less than ±100 nm, preferably ±50 nm; see page 9, paragraph [0173], lines 7-12).

Regarding Claim 9, as applied to claim 8 above and Kondo et al. further teach that the magnitude of the double refraction of the optical disk is ±55 nm or less when measured by the double pass mode of measurement in reflection (the birefringence of the transmitting layer 10, which dictates the birefringence of the whole disk as it is the only part light refracts through, is less than ±100 nm, preferably ±50 nm; see page 9, paragraph [0173], lines 7-12).

Regarding Claim 10, Kondo et al. further teach an optical disk apparatus (see page 17, paragraph [0285]) that can record and reproduce information on and from an optical disk on which a recording film capable of recording information and erasing information using a laser

beam having a wavelength of 600 nm or less is formed (recording layer 9 recorded by a light of wavelength 350 nm to 450 nm; see page 18, paragraph [0302], lines 4-6; paragraph [0303], lines 1-3; page 21, paragraph [0334] and figure 10), wherein the magnitude of a double refraction component of the entire region of the optical disk is ±40 nm or less when measured by a double pass mode of measurement in reflection (the birefringence of the transmitting layer 10, which dictates the birefringence of the whole disk as it is the only part light refracts through, is less than ±100 nm, preferably ±50 nm; see page 9, paragraph [0173], lines 7-12).

Regarding Claim 11, as applied to claim 10 above and Kondo et al. further teach that when PRML signal processing is used to reproduce the information (PRML decoding circuit is used; see page 18, paragraph [0294], lines 4-8), the magnitude of the double refraction of the entire region of the optical disk is ±70 nm or less when measured by the double pass mode of measurement in reflection (the birefringence of the transmitting layer 10, which dictates the birefringence of the whole disk as it is the only part light refracts through, is less than ±100 nm, preferably ±50 nm; see page 9, paragraph [0173], lines 7-12).

Regarding Claim 12, as applied to claim 11 above and Kondo et al. further teach that the magnitude of the double refraction of the optical disk is ±55 nm or less when measured by the double pass mode of measurement in reflection (the birefringence of the transmitting layer 10, which dictates the birefringence of the whole disk as it is the only part light refracts through, is less than ±100 nm, preferably ±50 nm; see page 9, paragraph [0173], lines 7-12).

8. Claims 1 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Cradic et al. (US 6,436,503 B1).

Regarding Claim 1, Cradic et al. teach an optical disk comprising a molded substrate molded by injection molding and having information marks transferred thereonto (substrate 210 and the media is formed by injection molding; see column 8, lines 52-55 and figure 2), on which a recording film capable of recording information only once by a laser beam having a wavelength of 600 nm or less is formed, and to and from which information can be recorded and reproduced, on which a reflection film is formed so as to reproduce information from the optical disk (reflective data layer 320 in which reflectivity is included recorded by red laser 600 nm; see column 8, lines 66-67, figure 2 and column 9, lines 43-45), wherein the magnitude of a double refraction of the entire region of the optical disk is ±60 nm or less when measured by a double pass mode of measurement in reflection (the maximum birefringence of a molded disk according to the present invention if preferably below 80 nm, and more preferably below 40 nm. In a most preferred embodiment, the maximum birefringence is below 30 nm; see column 7, lines 52-56).

Regarding Claim 7, Cradic et al. teach an optical disk comprising a molded substrate molded by injection molding and having information marks transferred thereto (substrate 210 and the media is formed by injection molding; see column 8, lines 52-55 and figure 2), on which a recording film capable of recording and erasing information is formed, and on and from which information can be recorded and reproduced using a laser beam having a wavelength of 600 nm or less (reflective data layer 320 recorded by red laser 600 nm; see column 8, lines 66-67, figure 2 and column 9, lines 43-45), wherein the magnitude of a double refraction component of the entire region of the optical disk is ±40 nm or less when measured by a double pass (the maximum birefringence of a molded disk according to the present invention if preferably below

80 nm, and more preferably below 40 nm. In a most preferred embodiment, the maximum birefringence is below 30 nm; see column 7, lines 52-56).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 2-3 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cradic et al. (US 6,436,503 B1) as applied to claim 1 and claim 7, above, further in view of Kashihara et al. (US 6,339,574 B1).

Regarding Claim 2, Cradic et al. teach the limitations of claim 1 for the reasons discussed above. Cradic et al. also teach the magnitude of the double refraction of the entire region of the optical disk is ±85 nm or less when measured by the double pass mode of measurement in reflection (the maximum birefringence of a molded disk according to the present invention if preferably below 80 nm, and more preferably below 40 nm. In a most preferred embodiment, the maximum birefringence is below 30 nm; see column 7, lines 52-56). Cradic et al. differs from the claimed invention in that it does not specifically show PRML (Partial Response and Maximum Likelihood) signal processing is used to reproduce signal information from the optical disk.

Kashihara et al. on the other hand teach PRML in optical disk signal reproduction (see abstract, lines 5-7). It would have been obvious to one of ordinary skill in the art at the time the

invention was made to have PRML signal processing scheme in the system of Cradic et al. since Kashihara et al. teach that by using PRML it is possible to provide an optical disk capable of reproducing information correctly by setting the track pitch and bit pitch of a track in a suitable range (see column 11, lines 51-59).

Regarding Claim 3, as applied to claim 2 above and Cradic et al. further teach that the magnitude of the double refraction of the optical disk is ±75 nm or less when measured by the double pass mode of measurement in reflection (the maximum birefringence of a molded disk according to the present invention if preferably below 80 nm, and more preferably below 40 nm. In a most preferred embodiment, the maximum birefringence is below 30 nm; see column 7, lines 52-56).

Regarding Claim 8, Cradic et al. teach the limitations of claim 7 for the reasons discussed above. Cradic et al. also teach the magnitude of the double refraction of the entire region of the optical disk is ±70 nm or less when measured by the double pass mode of measurement in reflection (the maximum birefringence of a molded disk according to the present invention if preferably below 80 nm, and more preferably below 40 nm. In a most preferred embodiment, the maximum birefringence is below 30 nm; see column 7, lines 52-56). Cradic et al. differs from the claimed invention in that it does not specifically show PRML (Partial Response and Maximum Likelihood) signal processing is used to reproduce signal information from the optical disk.

Kashihara et al. on the other hand teach PRML in optical disk signal reproduction (see abstract, lines 5-7). It would have been obvious to one of ordinary skill in the art at the time the

invention was made to have PRML signal processing scheme in the system of Cradic et al. since Kashihara et al. teach that by using PRML it is possible to provide an optical disk capable of reproducing information correctly by setting the track pitch and bit pitch of a track in a suitable range (see column 11, lines 51-59).

Regarding Claim 9, as applied to claim 8 above and Cradic et al. further teach that the magnitude of the double refraction of the optical disk is ±55 nm or less when measured by the double pass mode of measurement in reflection (the maximum birefringence of a molded disk according to the present invention if preferably below 80 nm, and more preferably below 40 nm. In a most preferred embodiment, the maximum birefringence is below 30 nm; see column 7, lines 52-56).

Conclusion

11. The prior art made of record in PTO-892 Form and not relied upon is considered pertinent to applicant's disclosure.

Morita (US 6207247 B1) teaches a molded substrate for an optical disk with a birefringence of less than 50 nm (see column 20, lines 30-36).

Ito et al. (US 6827999 B2) teach an optical information recording medium in which information can be recorded, reproduced and rewritten and which includes a first transparent substrate having a birefringence of less than 50 nm (see column 2, lines 28-30).

Kato et al. (US 2004/0115559 A1) an optical information recording medium which has a substrate with birefringence controlled so as to be 40 nm or less at a recording/reproducing wavelength, 780 nm, by controlling the injection speed of a material resin and the temperature of a mold in injection molding (see page 7, paragraph [0084]).

Kondo et al. (US 2002/0110067 A1) teach an information-recording medium that comprises a light transmission layer having a birefringence of less than 50 nm (see page 4, paragraph [0067]).

Kondo et al. (US 2003/0224215 A1) teach an information-recording medium that comprises a double light transmission layer having a combined birefringence of less than 50 nm (see page 6, paragraph [0095]).

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abdukader Muhammed whose telephone number is (571) 270-1226. The examiner can normally be reached on Monday-Thursday 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on (571) 272-7582. Customer Service can be reached at (571) 272-2600. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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13 April 2007

WAYNE YOUNG
SUPERVISORY PATENT EXAMINER